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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PANI, JOHN

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/808,505	Applicant(s) JOHANSSON, ROLAND SIXTEN	
	Examiner JOHN PANI	Art Unit 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/25/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 13, 15, and 16 are objected to because of the following informalities:

In reference to Claim 13

Line 1 refers to "the grip surfaces", which lacks antecedent basis. It is suggested to amend the claim so as to depend from claim 12.

In reference to Claim 15

Line 3 refers to "the grip surfaces", which lacks antecedent basis. It is suggested to amend the claim so as to depend from claim 12.

In reference to Claim 16

Line 1 refers to "the transducers", which lacks antecedent basis. Line 3 refers to "each grip surfaces", which lacks antecedent basis. It is suggested to amend the claim so as to depend from claim 15.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 23 recites the limitation "the members" in line 2. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 24 recites the limitation "the biasing force" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-10, 17-22, 27, 29-31, 33, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 5,090,421 to Wagoner ("Wagoner").

8. Wagoner teaches:

In reference to Claim 1

An apparatus (**11**) capable of evaluating manual dexterity and object manipulation in humans comprising: connection structure (**23**, **21**, **22** and **16-18**) to connect two hands, wherein each hand is capable of transmitting a force onto the other hand via the connection structure (for example by grasping **25** with one hand and **20** with another); and a unit to measure (strain gauges **26**, **27**, and **28**) and record (computer **12**, display screen **13**, and printer **14**) omnidirectional forces (note that the strain gauges are arranged to record forces in 3 axes) applied by each hand (the strain

gauges would record omnidirectional forces applied by either hand separately, or by both, depending on how the device is used).

In reference to Claims 2 and 3

The apparatus of claim 1 (see above), wherein one person holds the connection structure between both hands, or wherein the connection structure is held by two people, with each person holding the apparatus by one hand (the device would be capable of these uses).

In reference to Claim 4

The apparatus of claim 1 (see above) wherein the connection structure is provided by a hand-held unit (the device could be held by hand).

In reference to Claim 5

The apparatus of claim 1 (see above) further comprising a control unit in communication with the measure and record unit to record and analyze forces received by the measure and record unit (col. 2 lines 40-55).

In reference to Claim 6

The apparatus of claim 5 (see above) wherein the control unit is provided by a computer and a variety of peripheral devices including a display screen (see Fig. 1).

In reference to Claim 7

The apparatus of claim 6 (see above) wherein the computer is configured by a customized control program (col. 2 lines 47-55).

In reference to Claim 8

The apparatus of claim 4 (see above) wherein the hand-held unit comprises a pair of handles (**25** and **20**) attachable about either end of a joining member (**23**) and in use the joining member transmits forces between said handles.

In reference to Claim 9

The apparatus of claim 8 (see above) wherein the handles are fixed to the joining member (see Fig. 1, **20** is fixed via **22** and **21**).

In reference to Claim 10

The apparatus of claim 8 (see above) wherein the handles are rotatable about the longitudinal axis of the joining member (by rotating the entire device about the longitudinal axis of **23**, **25** and **20** would rotate about the longitudinal axis).

In reference to Claim 17

The apparatus of claim 8 (see above) wherein the handles are attachable about either end of the joining member (see Fig. 1).

In reference to Claim 18

The apparatus of claim 8 (see above) wherein the handles are interchangeable with handles having alternative geometries (see Figs. 3-5, and note that a differently shaped strap could easily be substituted or “interchanged” for **20**).

In reference to Claim 19

The apparatus of claim 8 (see above) wherein the handles have curved surfaces (see Figs. 1 and 5).

In reference to Claim 20

The apparatus of claim 8 (see above) wherein the geometry of each handle is adjustable by mechanical structure (for example by using a tool of some sort).

In reference to Claim 21

The apparatus of claim 8 (see above) wherein a shield (**15**) is placed between the subject and the handles (see Fig. 1, **15** would be located between the subject and handles if the subject was holding the device in front of himself with cord **32** pointing directly away. **15** would "shield" the user from the inner components of the device).

In reference to Claim 22

The apparatus of claim 8 (see above) wherein the joining member comprises two sections (threaded section **24** and section holding strain gauges) and a coupling (the section in between "couples" the two other sections together) mounted between the sections.

In reference to Claim 27

The apparatus of claim 6 (see above) wherein the computer generates signals providing information for subjects taking the test (col. 2 lines 47-55).

In reference to Claims 29, 31, and 33

The apparatus of claim 27 (see above) wherein the signals may be visible (col. 2 lines 47-55) and are output as a visual display on a screen, wherein the screen is a freestanding unit located in front of the person (see Fig. 1).

In reference to Claim 30

The apparatus of claim 27 (see above) wherein the signals include various target forces for subjects to aim for (col. 2 lines 47-55, "desired results").

In reference to Claim 35

The apparatus of claim 6 (see above) wherein the computer comprises a unit to receive and store input forces measured by the transducers (col. 2 lines 47-55).

In reference to Claim 36

The apparatus of claim 6 (see above) wherein the computer comprises a unit to compare the forces received with a set of control values which are input by a experimenter (col. 2 lines 47-55).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 4, 8, 11, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 4,824,103 to Smidt ("Smidt") in view of US Pat. No. 5,452,615 to Hilton ("Hilton").

In reference to Claim 1

Smidt teaches an apparatus (**83**, see Fig. 12) capable of evaluating manual dexterity and object manipulation in humans comprising: connection structure (**1** and **50**) to connect two hands wherein each hand is capable of transmitting a force onto the other hand via a connection structure; and a unit (**1** and **11**) to measure and record

Art Unit: 3736

forces applied by each hand. However, Smidt does not teach the type of measuring unit or whether it is capable of measuring omnidirectional forces. Hilton teaches a device for measuring and converting to an electrical signal forces and torques about three axes (col. 3 line 40-col. 5 line 15). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device of Smidt by substituting for the single interior transducer of Smidt, the force and torque converter system of Hilton into the handles of the device in order to achieve the predictable result of converting force and torque generated about three axes by the hands into electrical signals, as taught by Hilton.

In reference to Claim 4

Smidt in view of Hilton teaches the apparatus of claim 1 (see above) and Smidt teaches the connection structure is provided by a hand-held unit (see Fig. 13).

In reference to Claim 8

Smidt in view of Hilton teaches the apparatus of claim 4 (see above), and Smidt further teaches the hand-held unit comprises a pair of handles attachable about either end of a joining member and in use the joining member transmits forces between the handles (see Fig. 12).

In reference to Claim 11

Smidt in view of Hilton teaches the apparatus of claim 8 (see above) and Hilton teaches that the transducers (**2**, **4**, and **6**) are fitted between the handles (**9**) and the joining member (**11**) in order to measure the torque applied by the subject to each handle of the hand-held unit (see Fig. 1).

In reference to Claim 12

Smidt in view of Hilton teaches the apparatus of claim 11 (see above) and both Smidt and Hilton teach that each handle has a pair of grip surfaces (For Smidt, outer and inner surface of handle. For Hilton, opposing sides of the handle) to receive any of the digits of a person's hand.

In reference to Claim 14

Smidt in view of Hilton teaches the apparatus of claim 12 (see above). While neither Smidt or Hilton explicitly teaches the distance between the grip surfaces, it would have been obvious to one having ordinary skill in the art at the time of the invention to have varied the thickness of the handle of Smidt to any size required, including from 10-40 mm, for a variety of reasons, such as to optimize the handle to the hands of different sized people.

In reference to Claim 15

Smidt in view of Hilton teaches the apparatus of claim 12 (see above) and Hilton teaches that the handles of the apparatus are equipped with transducers to measure omnidirectional forces generated by the subject at each of the grip surfaces (the transducers of Hilton would measure forces generated by touching the surface of the handle).

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smidt in view of Hilton as applied to claim 15 above, and further in view of US Pat. No. 6,231,525 to Paske ("Paske").

Smidt in view of Hilton teaches the device of claim 15 (see above) but neither teach transducers that measure internal forces due to asymmetric application of the gripping forces produced by opposing digits at each grip surface along with measurements of the points of force pressure centers. Paske teaches a system for determining neural damage in the hand in which transducers (**10**, **11**, and **12**) measure internal forces due to asymmetric application of the gripping forces applied by opposing digits at each grip surface along with measurements of the points of force pressure centers (**22**). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device of Smidt by including in its handle force sensors as taught by Paske in order to achieve the predictable result of diagnosing possible neural damage, as taught by Paske.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smidt in view of Hilton as applied to claim 8 above, and further in view of US Pat. No. 4,674,330 to Ellis ("Ellis").

Smidt in view of Hilton teaches the device of claim 12 (see above) but do not teach that the grip surfaces are provided by longitudinally extending hemi-cylindrical ridges coaxial with the longitudinal axis of the joining member when the handles are mounted on the joining member. Ellis teaches a device (**1'**, see Fig. 8) for the measurement of grip and pinch strength in which the grip surfaces (**2'** and **3'**) are longitudinally extending hemi-cylindrical ridges. It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the handles

Art Unit: 3736

of Smidt by making them of a configuration such as shown in Fig. 8 of Ellis, thereby providing the predictable result of testing grip/pinch strength as taught by Ellis in addition to applied forces as taught by Smidt and Hilton.

13. Claims 28, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagoner in view of US Pat. No. 5,186,695 to Mangseth et al. ("Mangseth").

In reference to Claim 28 and 38

Wagoner teaches the device of claims 27 and 31 (see above) but does not teach that the computer provides information including a demonstration and instructions for the subject taking the test. Mangseth teaches an apparatus for controlled exercise and diagnosis of performance in which the computer displays information including a demonstration and instructions (see Fig. 28) for the subject taking the test wherein the visual display includes a pre-test demonstration using graphical symbols or characters showing the subject what they are required to do (Fig. 28). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device of Wagoner so that the computer provided a demonstration and instructions for taking the test as taught by Mangseth so that the user would accurately perform the test, as implicitly taught by Mangseth.

In reference to Claim 37

Wagoner teaches the device of claim 6 (see above) but does not teach that the computer generates a signal information the person that they have successfully

completed the current section of the test. Mangseth teaches an apparatus for controlled exercise and diagnosis of performance in which the computer displays information informing the person that they have successfully completed the current section of the test (see Fig. 33, "% of Goal"). It would have been obvious to one having ordinary skill in the art at the time of invention to have modified the computer of Wagoner to display the user's progress so that the user would know when they had achieved their goal, as taught by Mangseth.

14. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wagoner in view of Hilton.

Wagoner teaches the device of claim 27 (see above) but does not teach that the signal is output as an audible signal via speakers. Hilton teaches using an audio indicator (**148**) to signal the user of sensed forces. It would have been obvious to one having ordinary skill in the art at the time of the invention to have included in the device of Wagoner, speakers to produce audible information regarding the sensed forces, as taught by Hilton.

15. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wagoner in view of US Pat. No. 6,245,014 to Brainard ("Brainard").

Wagoner teaches the device of claim 31 (see above) but does not teach that the screen is mounted on a joining member between the two handles. Brainard teaches a device for testing a user's coordination in which a screen is mounted between the two

Art Unit: 3736

handles (see Fig. 3A). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device of Wagoner by placing a screen on the device between the handles as taught by Brainard so that the user would be able to use the device without looking away, as implicitly taught by Brainard.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN PANI whose telephone number is (571)270-1996. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3736

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP 2/14/08

/Max Hindenburg/
Supervisory Patent Examiner, Art Unit 3736